**[0026]** In some embodiments, the management system includes: a tag tracking device that monitors a location, movement, or use of the tag or item; a pattern analyzer that processes data received by the tag tracking device regarding the location, movement, or use of the tag or item; an order processor that automatically orders a quantity of the item in response to a result of the pattern analyzer; and a customer profile generator that includes profile information for use by the pattern analyzer or the order processor.

**[0027]** In some embodiments, the management system includes a notification generator that generates from an analysis data safety alerts, marketing-related communications, or other notifications related to the item.

**[0028]** In accordance with another aspect, provided is a method for retail subscription, comprising: tagging one or more items for tracking; configuring a reader to receive data from the tagged items; connecting the reader to a network; registering with a subscription service; and setting one or more guidelines.

**[0029]** In accordance with another aspect, provided is a method for cross-selling in an Internet of Things environment, comprising identifying a first item; identifying a second item; determining if the second item enhances the first item; and notifying the customer about the second item.

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

**[0030]** The above and further advantages may be better understood by referring to the following description in conjunction with the accompanying drawings, in which like numerals indicate like structural elements and features in various figures. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the concepts.

**[0031]** FIG. **1** is a component model of an environment in which embodiments may be practiced.

**[0032]** FIG. **2** is a block diagram of a retail subscription management system (RTMS), in accordance with some embodiments.

**[0033]** FIG. **3** is a flowchart of a method for configuring an IoT environment for a subscription service, in accordance with some embodiments.

**[0034]** FIG. **4** is a flowchart of a method for providing a retail subscription service in an IoT environment, in accordance with some embodiments.

**[0035]** FIG. **5** is a flowchart of a method for cross-selling in an IoT environment, in accordance with some embodiments.

## DETAILED DESCRIPTION

**[0036]** In modern society, convenience is important to a typical shopper. To address the evolving needs of the modern consumer, while also considering other revenue opportunities, many retailers may wish to offer subscription services, which may be established via the Internet, and where delivery may be made directly to the consumer's home, office, or other desired location. However, shoppers nevertheless order products and set subscription options on a retailer's website without the understanding or knowledge of whether refills, replacements, or upgrades are needed.

**[0037]** Systems and methods in accordance with some embodiments include the application of an Internet of Things (IoT) model, which permits consumer goods to be monitored, controlled, and/or managed remotely by special-purpose electronic devices via a network such as the Internet. The consumer has control over the automatic subscription service as to whether an item should be replenished, upgraded, or replaced. The consumer goods may be located at the subscriber's home, business, or other desired location, and may require replacement, replenishment, or upgrade, for example, perishables such as milk, meat, or vegetables, or everyday retail items such as razor blades, appliances, toilet paper, or printer cartridges. Ancillary features may include the marketing of other items based on a subscription or purchase of related items, or services such as providing alerts when a predetermined threshold is reached with respect to items under the subscription service. Related features may include providing a prediction pattern of demand management or time sensitive advertising.

**[0038]** To achieve the foregoing, the systems and methods in accordance with some embodiments may employ a number of active or passive tags attached to retail goods, and constructed and arranged to provide substantial real-time information about the corresponding retail goods, such as usage patterns, movement, device conditions, or activity. The tags can relay location and movement of consumer goods to distinguish estimated use through tag readers placed in the consumer's home. Accordingly, tags can be tracked by readers to enable a user to track a location or movement of specified items with specified tags. For example, a tag reader can be placed on a refrigerator for reading tags on food items, or on a washer for reading tags on clothes, or in a closet for reading tags on clothes, or at a tool box space for reading tags on the tool box and/or tools within the box.

**[0039]** IoT replenishment or replacement guidelines can be set through a subscription service that may obviate the need for a retail store in the chain between manufacturer and consumer. The systems and methods may perform data collection, data communication, data analysis, or tracking of items, or a combination thereof to improve the prediction of buying or automatic replenishment, replacement, upgrade, recall of the goods to which the tags are attached, so that recommendations or automatic actions may be performed. For example, the system can analyze patterns through the data collected to predict when items should be replenished automatically. The IoT environment can also determine related items for cross-selling or advertising purposes. Also, safety alerts of selected items can be established based on consumer data gathered by placing tags on products, and using electronic receivers to monitor the rate at how products are consumed, diminished, expired, or worn down, to determine whether item upgrades, replenishments, or replacements are needed.

**[0040]** Accordingly, embodiments of the inventive concepts may comply with a paradigm shift where a retail establishment provides consumer goods directly to a consumer's home or business, instead of a conventional model where the consumer travels to the retail establishment in order to acquire the goods, or refilling, upgrades, and so on with respect to the goods.

**[0041]** In some embodiments, a system uses data gathered from the home via an IoT model using beacons, e.g., RFID tags, and readers, e.g., RFID readers, as to where items are within a location and when they are used or moved to another location. For example, a user may pick up a tooth brush and place it back down, suggesting a use of the tooth